# *CIMBEX CONNATUS* (SCHRANK) (HYMENOPTERA: CIMBICIDAE): A RARE SPECIES OF SAWFLY IN THE BRITISH ISLES

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The Cimbicidae is a widespread, but relatively small, family of sawflies with an estimated 130 species (Gaston, 1993) and is divided into 4 subfamilies, Cimbicinae, Abiinae, Coryninae and Pachylostictinae (Gauld & Bolton, 1988). The Palaearctic faunas have not been investigated in detail since Gussakovskij (1947), although Ermolenko (1972), Zhelokhovtsev (1988) and Viitasaari (1990) revised those of the Ukraine, the western part of the Soviet Union and Finland, respectively. Benson (1951: 39–40) noted significant variation and variability between adult specimens and stated that the entire family required extensive re-analysis with reference to the characters used to define species and the correlation of larvae and adults. Further, Lorenz and Kraus (1957) observed great variability within species of *Cimbex* in their key to larvae.

The British fauna was revised most recently by Quinlan and Gauld (1981), although a more recent key to genera exists (Wright, 1990), who recorded 2 subfamilies (Cimbicinae and Abiinae), 4 genera and 11 species and deleted the subfamily Coryninae from the British faunal list. Of the three British species of *Cimbex*, only *C. femoratus* (L.) is considered to be relatively common; *C. connatus* (Schrank, 1776) and *C. huteus* (L.) are encountered rarely, particularly the former.

*C. connatus* feeds on both *Ahus glutinosa* (L.) Gaertn. and *A. incana* (L.) Moench (e.g., Gussakovskij, 1947; McVean, 1953; Ermolenko, 1972; Pieronek, 1979) and appears to be widespread within the Palaearctic region, with the exception of Japan. Adults of this univoltine species fly between May and August (e.g., Benson, 1951) and larvae may be found from July to September (Lorenz and Kraus, 1957; Verzhutskij, 1981), feeding in the upper crown at the leaf's edge (early instars) and, subsequently, consuming all but the petiole and the thickest parts of the blade (Pieronek, 1979). Other aspects of the species' biology are detailed in Pieronek (1979, 1985). The adult is illustrated in Gussakovskij (1947: 23) and Ermolenko (1972: 102 and opposite p. 112) and the larva is depicted in Lorenz and Kraus (1957: 255) and in Vitasaari (1990: 42).

In the last century and in the pre-1914 period of this, *C. connatus* was recorded from Suffolk, Kent, Surrey, Sussex, Devon and Cornwall, which suggests a relatively widespread distribution, south of a line from the Severn to the Wash (Benson, 1951; D. Sheppard, pers. comm.). Post-1945 records are restricted to larval data from the Leighan Valley, Devon in 1947 (Benson, 1951), leading to speculation that the species had become extinct in the United Kingdom. However, data from Eire (O'Connor *et al.*, 1997) suggests otherwise and indicates that *C. connatus* occurred in the British Isles, but that its habitat range was dwindling and, thus, was becoming rarer and collected less often.

In late July, 1997, the first author found a female of *C. connatus* alongside the River Nadder, near Compton Chamberlayne (60–70 m a.s.l), in the Salisbury district

of Wiltshire. The habitat is a meandering stream with scattered specimens of *A. glutinosa* along its banks, within partially-grazed pasture, formerly water meadows, containing many species of nectar-producing flowers, including *Dipsacus pilosus* L. (small teasel), *Senecio aquaticus* Hill (marsh ragwort) and *Lythrunn salicaria* L. (purple loosestrife) (Fig. 1). The specimen itself was found in long grass, less than 3m from the bank, vibrating its wings rapidly which created a distinct buzzing sound. The pinned female was shown at the BENHS Annual Exhibition 1997 (Plate VI, Fig. 17 and front cover) and a formal identification made. This confirms the species' presence in the United Kingdom and is the first record for the county of Wiltshire.

The apparent disappearance of *C. connatus* from the British fauna requires comment. At least one other species of sawfly has intermittent records within the British faunal list, namely *Blasticotoma filiceti* Klug, which has led to suggestions that it was an occasional introduction, rather than a very rare breeding species (discussed in Benson, 1953; Key, 1998). Moreover, there are problems associated with tallying older British records of sawflies with modern occurrences or absences, for example, the data of Leach (1817) for Megalodontesidae (commentary in Perkins, 1929) and those of Stephens (1835) for Orussidae (commentary in Benson, 1951). However, the status of an occasional introduction, mistaken attribution or subsequent extinction do not apply to *C. connatus*; relatively widespread and authenticated material exists.

Several factors may be important in explaining the present status of *C. connatus* in the UK. Perhaps the most important of these may be the virtual disappearance of flood-plain forest in Britain (Peterken & Hughes, 1995), a consequence of systematic drainage of fens and carrs, which has reduced older woods to isolated remnants over the past 200 years (Yon & Tendron, 1981). In the 1990s, alder woods in the UK have suffered further damage from the widespread fungus, *Phytophthora cambivora* (Petri) Buisman, (Oomycota: Pythiaceae) (Anon., 1997). Thus, there has been severe cumulative pressure on its native host species, *A. glutinosa*, although some 580,000



Figure 1. Wiltshire, Compton Chamberlayne, River Nadder, vii. 1998. View downstream, flowing in easterly direction. photo: D. Anne.

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specimens are estimated in England (Anon., 1997). In addition, *C. connatus* appears unable to colonize its alternative host in the Palaearctic, *A. incana*, within the British Isles. *A. incana* is not a native species, but one introduced in the 1780s (Rumsey, pers. comm.) which has been planted relatively widely in land restoration and reclamation projects for its tolerance of acidic soils and its nitrogen-fixing abilities (Wood & Thirgood, 1954; Zehetmayr, 1954; Shaw, pers. comm.). *A. glutinosa* and *A. incana* are not sympatric (preferring siliceous and calcareous soils, respectively (McVean, 1953)) and it is not known if Palaearctic populations of *C. connatus* are able to switch hosts facultatively.

These factors, and a more recent, yet nonetheless, saddening decline of interest in and funding for the investigation of British sawfly faunas, may have combined to give the impression of a disappearing species. Nevertheless, separately or together, these factors make for a rather *ad hoc* and unsatisfactory explanation. It is possible that, although suitable habitats for C. compaties may be in decline and the species itself appears to be very rare, careful study of alder-wood habitats, throughout the insect season, in the British Isles may reveal more material. On the basis of a singleton, and without further investigation, speculation upon C. connatus in the British Isles would be unwise. However, conservation of the remaining alder woodlands, and restoration by replanting of denuded ones, is vital in order to maintain suitable habitats for C. connatus. As a whole, the British sawfly fauna requires more widespread and systematic static trapping, rather than casual and sporadic sweeping, and employing specific methods for the sampling of crown faunas (e.g., Basset et al., 1997). Methodical examination of and rearing from known and potential host-plants is also needed to fill the many gaps in our knowledge of British sawflies.

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